



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/562,581	12/28/2005	Susumu Okazaki	36856.1389	7909

54066 7590 06/29/2007
MURATA MANUFACTURING COMPANY, LTD.
C/O KEATING & BENNETT, LLP
8180 GREENSBORO DRIVE
SUITE 850
MCLEAN, VA 22102

EXAMINER

ROSENAU, DEREK JOHN

ART UNIT	PAPER NUMBER
----------	--------------

2834

NOTIFICATION DATE	DELIVERY MODE
-------------------	---------------

06/29/2007

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

JKEATING@KBIPLAW.COM
uspto@kbiplaw.com

TH

Office Action Summary	Application No. 10/562,581	Applicant(s) OKAZAKI ET AL.	
	Examiner Derek J. Rosenau	Art Unit 2834	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 December 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 7-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 7-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 December 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>12/28/2005</u> <u>4/4/2007</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

1. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Japan on 12 August 2004. It is noted, however, that applicant has not filed a certified copy of the 2004-235029 application as required by 35 U.S.C. 119(b).

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 7, 8, and 10-15 are rejected under 35 U.S.C. 102(b) as being anticipated by Nakamura et al. (US 20030107300).

4. With respect to claim 7, Nakamura et al. discloses a piezoelectric electroacoustic transducer (Fig 1) comprising: a quadrilateral piezoelectric diaphragm (item 1) arranged to be vibrated in a thickness direction of the diaphragm by applying an alternating signal to lead electrodes thereof (Paragraph 14); a casing (item 10) including a supporting portion disposed on an inner circumference of the casing (Fig 1), the supporting portion supporting an outer circumference of said piezoelectric diaphragm (Fig 9); first and second terminals (items 11a and 12a) that are fixed to said casing so that inner connecting portions are exposed on said inner circumference of the casing (Fig 10); and conductive adhesives (items 14a and 14b) electrically connecting the lead electrodes of

Art Unit: 2834

the piezoelectric diaphragm and the inner connecting portions of the first and second terminals (Fig 10); wherein one of said conductive adhesives is arranged between the inner connecting portion of said first terminal and one of the lead electrodes near one corner of said piezoelectric diaphragm (Fig 10); and the other conductive adhesive is arranged between the inner connecting portion of said second terminal and the other lead electrode near another corner of said piezoelectric diaphragm which is adjacent to the one corner of said piezoelectric diaphragm (Fig 10).

5. With respect to claim 8, Nakamura et al. discloses a piezoelectric electroacoustic transducer according to claim 7, wherein the location of one of said conductive adhesives faces the location of the other conductive adhesive across said piezoelectric diaphragm (Fig 10).

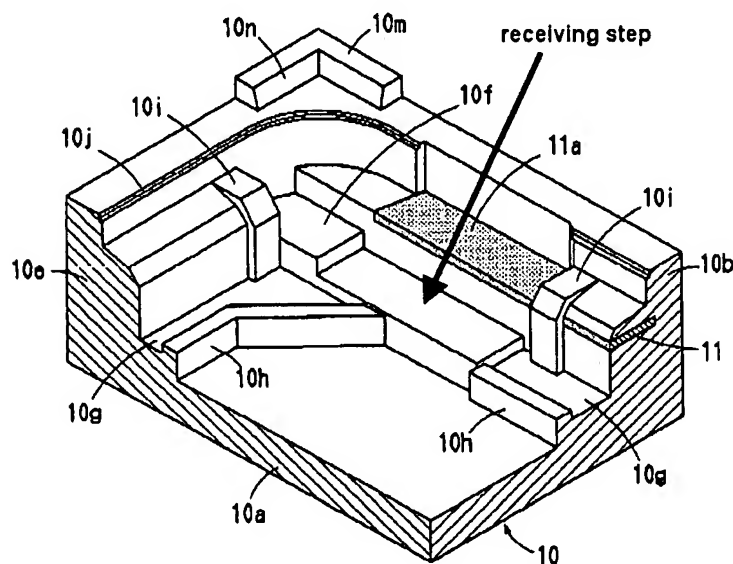
6. With respect to claim 10 Nakamura et al. discloses a piezoelectric electroacoustic transducer according to claim 7, wherein said piezoelectric diaphragm includes a quadrilateral piezoelectric member (item 1a) in contact with a quadrilateral metallic plate (item 2), wherein one of said lead electrodes is disposed on the surface of the piezoelectric member, and another of said lead electrodes is the metallic plate (Fig 3).

7. With respect to claim 11 Nakamura et al. discloses a piezoelectric electroacoustic transducer according to claim 7, wherein said piezoelectric diaphragm includes a plurality of piezoelectric ceramic layers (items 1a and 1b) sandwiching an inner electrode (item 4), said piezoelectric diaphragm including principle surface electrodes (items 2 and 3) on principle surfaces of the front and back sides of said

piezoelectric diaphragm (Fig 3), wherein one of said lead electrodes is connected to the inner electrode and the another of said lead electrodes is connected to the principle surface electrodes (Fig 3).

8. With respect to claim 12 Nakamura et al. discloses a piezoelectric electroacoustic transducer according to claim 7, wherein an elastic adhesive (items 13 a and 13c) is applied directly between the piezoelectric diaphragm and an inner connecting portion of one of said first and second terminals, and the conductive adhesive is disposed over the elastic adhesive so as to indirectly connect said inner connecting portion and said piezoelectric diaphragm (Fig 10).

9. With respect to claim 13 Nakamura et al. discloses a piezoelectric electroacoustic transducer according to claim 7, wherein the casing includes a receiving step (see figure below, figure 8 from Nakamura et al.) having a height lower than the supporting portion and a predetermined space between the receiving step and the bottom surface of the diaphragm (Fig 8).



10. With respect to claim 14 Nakamura et al. discloses a piezoelectric electroacoustic transducer according to claim 7, further comprising an elastic sealant in a space between an entire circumference of the diaphragm and an inner circumference of the casing (item 15).

11. With respect to claim 15 Nakamura et al. discloses a piezoelectric electroacoustic transducer according to claim 7, wherein the casing includes a groove (Fig 9, item 10g) and a wall (item 10h) arranged to prevent flow of the elastic sealant to a bottom wall of the casing (Fig 9).

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura et al. in view of Mizusawa (US 6778029) or acknowledged prior art.

14. With respect to claim 9, Nakamura et al. discloses a piezoelectric electroacoustic transducer according to claim 7.

Nakamura et al. does not disclose expressly that the location of one of said conductive adhesives and the location of the other conductive adhesive are on one side of said piezoelectric diaphragm and near corners at both ends of the one side.

Mizusawa teaches a piezoelectric transducer in which the location of one conductive adhesive and the location of another conductive adhesive are on one side of

said piezoelectric diaphragm and near corners at both ends of the one side (Fig 2, 3B, or 5B).

Also, the acknowledged prior art, as illustrated in Figure 19 of the present application, teaches a piezoelectric transducer in which the location of one terminal (item 33), and the location of another terminal (item 38) are on one side of said piezoelectric diaphragm and near corners at both ends of the one side (Fig 19). As the conductive adhesive is used to connect to the terminals, the conductive adhesive would be in the same corner positions of the two terminals.

At the time of invention, it would have been obvious to a person of ordinary skill in the art to combine the terminal configuration of either Mizusawa et al. or the acknowledged prior art with the piezoelectric electroacoustic transducer of Nakamura et al. for the benefit of simplifying the means of connection to the piezoelectric diaphragm and eliminating the need for a support means at one end of the diaphragm.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Derek J. Rosenau whose telephone number is 571-272-8932. The examiner can normally be reached on Monday thru Thursday 7:00-5:30.

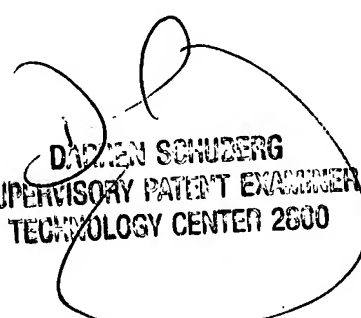
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren Schuberg can be reached on 571-272-2044. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2834

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Derek J Rosenau
Examiner
Art Unit 2834

DJR
6/18/2007


DARREN SCHUZBERG
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600